AN EVALUATION OF THE WHITE PINE AT THE LINVILLE FALLS PICNIC AREA

Report # 81-1-50
August 1981

By

William H. Sites

The white pine in the Linville Falls Picnic Area and Campground were severely defoliated by the introduced pine sawfly in 1978 and 1979. By 1980, many of the trees seemed to be beyond recovery.1/ However, in a visit on August 17, 1981, it was apparent that although under stress and bearing sparse, dwarfed foliage, the trees are still alive. The majority of those that died, are suppressed and do not make up a significant number of stems.

The pines in the picnic area and campground are mature. In fact, they are overmature when the site pressures are considered. These include overstocking and soil compaction caused by public use. These are a dangerous combination that could cause a rapid and wholesale breakdown of the stand, if another insect or disease outbreak occurs. In other words, the trees comprising the current stand have a relatively short life expectancy. Thus, the Park Service should establish a tree/stand management plan now. Some factors that should be considered in this plan are:

1. What tree and other plant species are best suited to this site and its pressures?

    (a) Should white pine be perpetuated for aesthetic or historic reasons?

    (b) Should the stand be converted to hardwoods?

    (c) What species and age class mixture would be most resistant to insects, diseases and use pressures?

2. If white pine is to be perpetuated, or if the stand is to be converted to hardwoods, what timetable would be appropriate?

In devising a formal plan, the manager is attempting to head off a loss of aesthetic quality or the development of safety hazards that overtax existing maintenance funds and programs. Thus, the plan must address insect and disease problems as a major factor; whether it is for a newly planned facility, one in the design or construction phases or one in routine maintenance and safety inspection status. In this instance, a management plan that called for a change in age or species composition, would naturally require more attention and be more expensive to institute than no plan. With no plan, the trees will die out and hardwoods will take over the site. This could occur gradually or all at once with a catastrophic disease or insect outbreak.

1/Ghent, J. H. and Cindy A. Mitchell. 1980. Status report of the introduced pine sawfly outbreak in the southern Appalachians. SA, S&PF, USDA, Forest Service Report #81-1-13. 18p.

At Linville, a catastrophe nearly occurred because of an infestation by the introduced pine sawfly. The apparent recovery though is only temporary. Compared to the long term that this facility will be managed, this is a grace period granted by the collapse of the sawfly population. It should however, provide some lead time in developing long-term management goals.

It is not possible to predict how long the trees will survive. With no additional insect, disease or environmental stress (drought, air pollution, etc.), they may continue to refoliate and survive for a number of years. Three root disease fungi that often enter stressed stands are Fomes annosus, Armillaria mellea and a more recent discovery, Verticicladiella procera. I saw no evidence of F. annosus or V. procera. Armillaria mellea probably exists, since it occurs in nearly every stand, but is not causing mortality now. If an outbreak of any of these does occur, public safety will be threatened.

For the present, several steps should be taken to protect the public's safety and the aesthetic quality of the area. They are:

1. Cut only dead wood.

   (a) This protects the residual stand somewhat from root rot fungi.

   (b) Refraining from a general thinning of live trees reduces the possibility of windthrow in the residual stand.

   (c) Not thinning and not opening the crown will keep soil from direct exposure to sunlight and possible dehydration.

2. Treat freshly cut stumps with borax to reduce the risk from F. annosus immediately after cutting.

3. If one stem of a twin, V-crotched, double-stem tree must be cut because of storm damage or insect or disease activity, cut the second stem as well. (If one stem is left, it is prone to attack by root and butt fungi and subsequent failure.)

4. Use wood chips on paths, around tables, etc., rather than the gravel, which is more abrasive to roots.

5. Trim dead limbs and tops when they occur, especially around parking lots where this condition is more frequent and where the visitor occupancy rate is higher.

6. Conduct annual inspections to evaluate the trees for those that are hazardous.

   (a) Maintain a dated, signed copy of the report in the Linville Picnic Area file (This file should contain historical records, maintenance records, and all reports on the area to date.).

   (b) Photograph marginal trees and monitor their recovery/decline from year to year.

The next several years will be critical for the survival of the current stand of trees. They are under stress and whether or not they succumb to other insect attacks or diseases depends on the population dynamics of the insects and the presence and pathogenicity of the disease causing fungi or stresses like drought and air pollution.